

TITLE

MOTION CONTROL APPARATUS WITH BACKLASH REDUCTION

ABSTRACT OF THE DISCLOSURE

A motion controller for use with a rod (10A, 10B, 10C) has a backlash
5 reducer (88A, 88B, 88C) that substantially reduces or eliminates the space created
after manufacturing parts with specified tolerance dimensions to substantially
reduce or eliminate backlash. The backlash reducer (88A, 88B) can be in the form
of a holder such as an internal retaining ring (78) and a shim (36), a threaded cap
(38), or the like to accommodate various part size variances due to manufacturing
10 tolerances. Alternately, the end cap (45) of the motion controller (10C) can have an
outside thread (41) that mates to an inside thread (43) of the inside surface (54) of a
housing (29). The motion controller (10A, 10B, 10C) has a friction collar (12) to
hold the rod (14) under the action of balls (16) and a piston (18). The motion
controller (10A, 10B, 10C) can be fluid powered with a fluid such as air.